

We claim:

5 1. A method of marking a data disc product
comprised of polycarbonate material and storing data
thereon, the method used for tracking purposes to
inhibit at least one of piracy, unauthorized access and
unauthorized copying of the data stored on the data
disc product, said method comprising the steps of:

10 (a) introducing at least one predetermined
tracing substance as a predetermined marking in the
polycarbonate material of the data disc product in
quantities that will not adversely effect at least one
of performance, structure of, and the data stored on,
the data disc product; and

15 (b) manufacturing the data disc product with the
at least one predetermined tracing substance introduced
therein in said introducing step (a).

20 2. A method according to claim 1, wherein said
introducing step (a) further comprises the step of
introducing the at least one predetermined tracing
substance as a security marking in the polycarbonate

material including predetermined concentration amounts of at least one of an isotope, a plurality of isotopes and a plurality of stable isotopes.

5 3. A method according to claim 1, wherein the at least one predetermined tracing substance comprises at least two predetermined tracing substances, and wherein said introducing step (a) further comprises the step of introducing the at least two predetermined tracing substances as a security marking in the polycarbonate material including predetermined concentration amounts of at least one of an isotope, a plurality of isotopes and a plurality of stable isotopes.

10 4. A method according to claim 1, further including a step of identifying by inspecting the data disc product the at least one tracing substance for tracking purposes to inhibit at least one of piracy, 15 unauthorized access and unauthorized copying of the data stored on the data disc product.

5 5. A method according to claim 2, further
including a step of identifying by inspecting the data
disc product the at least one tracing substance
including the predetermined concentration amounts of
the at least one of the isotope, the plurality of
isotopes and the plurality of stable isotopes for
tracking purposes to inhibit at least one of piracy,
unauthorized access and unauthorized copying of the
data stored on the data disc product.

10 6. A method according to claim 2, further
including a step of identifying by inspecting the data
disc product the at least one tracing substance
responsive to a ratio of concentration amounts in said
data disc product, for tracking purposes to inhibit at
15 least one of piracy, unauthorized access and
unauthorized copying of the data stored on the data
disc product.

 7. A method according to claim 1, wherein the at
least one tracing substance comprises a transparent

oxide of at least one of a silicate, a lead dioxide, tin, cadmium 12 and iridium 5, or combination thereof.

5 8. A method according to claim 1, wherein said manufacturing step (b) further comprises the step of manufacturing the data disc product with a non-chemically reactive metalized glare that provides stable, reliable and repeatable performance over a substantial period of time.

10 9. A method according to claim 4, 5 or 6, wherein said identifying step further comprises using at least one of mass spectrometry, neutron absorption and neutron spectrometry techniques.

15 10. A method according to claim 1, further including a step of attributing distribution of the at least one data disc product to a manufacturer such that identification of said at least one tracing substance in said data disc product indicates whether the manufacturer is an authorized manufacturer.

5 11. A method according to claim 1, further including a step of storing, in a database on a computer-readable medium, identity characteristics corresponding to the predetermined marking of each data disc product, and accessing said database to compare the predetermined marking with the identity characteristics to determine a match therefor.

10 12. A method according to claim 1, wherein the predetermined marking is indicative of product information including at least one of a lot number, batch number, shipper, recipient, shipping date, manufacturer identity, manufacturing date and designated product purpose.

15 13. A method according to claim 2, wherein the data includes information on at least one of a music originator, a music title, and group of titles.

14. A method according to claim 1, wherein the predetermined marking is substantially transparent.

15. A method of marking a protective layer of a product at least one of comprised of and including a portion of polymer, said method used to track said product and inhibit at least one of piracy,
5 unauthorized access and unauthorized copying of said product, said method comprising the steps of:

(a) introducing at least one predetermined tracing substance as a predetermined marking in the polycarbonate material of the protective layer of the product in quantities that will not adversely effect at
10 least one of performance, structure of, and the data stored on, the product; and

(b) manufacturing the product with the at least one predetermined tracing substance introduced therein
15 in said introducing step (a).

16. In a security marking method for marking a polycarbonate-based product to prevent at least one of piracy, unauthorized access and unauthorized copying of said product, a data disc impregnated with at least one
20 predetermined tracing substance providing the security marking used for at least one of tracking and

5 authenticating said data disc, the at least one
predetermined tracing substance including predetermined
concentration amounts of at least one of an isotope, a
plurality of isotopes and a plurality of stable
isotopes, and the predetermined tracing substance
indicative of product information including at least
one of a lot number, batch number, shipper, recipient,
shipping date, manufacturer identity, manufacturing
date and designated product purpose.

10 17. A system of marking a protective layer of a
product at least one of comprised of and including a
portion of polymer, said system used to track said
product and inhibit at least one of piracy,
unauthorized access and unauthorized copying of said
15 product, comprising:

20 means for introducing at least one predetermined
tracing substance as a predetermined marking in the
polycarbonate material of the protective layer of the
product in quantities that will not adversely effect at
least one of performance, structure of, and the data
stored on, the product; and

means for manufacturing the product with the at least one predetermined tracing substance introduced therein by said means for introducing.

5 18. A system of marking a product at least one of comprised of and including a portion of polymer, said system used to track said product and inhibit at least one of piracy, unauthorized access and unauthorized copying of said product, comprising:

10 a substance introduction system introducing at least one predetermined tracing substance as a predetermined marking in the polycarbonate material of the product in quantities that will not adversely effect at least one of performance, structure of, and the data stored on, the product; and

15 a product manufacturing system, operatively connected and structurally responsive to said substance introduction system, and manufacturing the product with the at least one predetermined tracing substance introduced therein by said substance introduction
20 system.

5 19. A system of marking a protective layer of a data disc product at least one of comprised of and including a portion of polymer, said system used to track said data disc product and inhibit at least one of piracy, unauthorized access and unauthorized copying of said data disc product, comprising:

10 a substance introduction system introducing at least one predetermined tracing substance as a predetermined marking in a polycarbonate material of the data disc product in quantities that will not adversely effect at least one of performance, structure of, and the data stored on, the data disc product; and

15 a product manufacturing system, operatively connected and structurally responsive to said substance introduction system, and manufacturing the data disc product with the at least one predetermined tracing substance introduced therein by said substance introduction system.

20 20. A method for authenticating a data media storing data in order to prevent at least one of piracy, unauthorized access and unauthorized copying of

5 said data media, wherein said media is impregnated with
at least one predetermined tracing substance including
a predetermined concentration of at least one of an
isotope, a plurality of isotopes and a plurality of
stable isotopes, to form at least one security marking
used for at least one of tracking and authenticating
said data media, said method comprising the steps of:

10 (a) detecting the at least one security marking
in said data media;

(b) authenticating said data media responsive to
said detecting step (a) using the at least one security
marking; and

15 (c) outputting said data stored on said data
media as at least one of audio, video, audio data,
video data and digital data substantially free of said
at least one security marking when the data media has
been successfully authenticated by said authenticating
step (b).

20 21. The authenticating method according to claim
20, and further including the step of authenticating
said data media via at least two different security

markings, each of which successively must be authenticated before said data is finally output via said outputting step (c).

22. The authenticating method according to claim 20, and further including the step of authenticating said data media over a plurality of interconnected computer networks comprising at least one of a local network, global network and Internet.

23. In a security marking method for marking a polycarbonate-based product to inhibit at least one of piracy, unauthorized access and unauthorized copying of said product, a data disc impregnated with at least one predetermined tracing substance providing the security marking used for at least one of tracking and authenticating said data disc, the at least one predetermined tracing substance including predetermined concentration amounts of at least an isotope, a plurality of isotopes and a plurality of stable isotopes, and the predetermined tracing substance indicative of product information including at least

one of a lot number, batch number, shipper, recipient, shipping date, manufacturer identity, manufacturing date and designated product purpose.

24. In a security marking method for marking a polycarbonate-based product to inhibit at least one of piracy, unauthorized access and unauthorized copying of said product, a data message impregnated with at least one predetermined tracing substance providing the security marking used for at least one of tracking and authenticating said data message, the at least one predetermined tracing substance including predetermined concentration amounts of at least an isotope, a plurality of isotopes and a plurality of stable isotopes, and the predetermined tracing substance indicative of product information including at least one of a lot number, batch number, shipper, recipient, shipping date, manufacturer identity, manufacturing date and designated product purpose.